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ABSTRACT

This chapter considers the relationships between accreditation, certification, and training for educational technologists and instructional developers, and examines the role of feedback and quality control in these relationships. The history of the development of educational technology provides background for understanding some of the problems that are associated with professional preparation of media personnel and which have implications for certification. Current guidelines for certification are listed, and the roles of feedback and quality control are presented in the form of several models to be used as an element of certification. It is then suggested that the present guidelines and certification process will represent a positive correlation between task performance and certification, and recommendations are made for using the data produced during certification to improve the quality of training programs and for applying similar procedures informally throughout the curriculum. Six figures are included. (13 references) (Author/EW)

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534

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Chapter 42

Problems Associated with the Professional Preparation and Certification Of Educational Technology Personnel

Marvin E. Duncan

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What is the proper relationship among accreditation, certification and training? What role should feedback play? What about quality control? This chapter attempts to explicate these relationships, and in the process brings into focus the latest developments in the evolution of a certification procedure for educational technologists. Suggestions are also provided for using the data produced during certification to improve the quality of training programs, and for applying similar procedures informally throughout the curriculum.

INTRODUCTION

While curriculum evaluators judge the competencies in students enrolled in programs in educational technology as excellent with respect to theoretical matters many professionals in the area are becoming concerned about the lack of activities requiring practical application of this theory during formal instruction. In fields such as educational technology which require more than the mastery of theory for successful practice, it is desirable that experience in the application of theory be provided the student during the period of formal preparation. Incorporated in the practice of these disciplines is the process of certification,[1] a concept closely related to evaluation and quality control.

In general, quality control is the monitoring of all stages of a process such as a curriculum experience in order to insure that the skills taught in each stage of the learning process have been sufficiently mastered prior to movement to the next stage, thereby providing assurance that expected outcomes (end products) are at or above a pre-set level. Certification is a way of verifying that an individual can perform a task correctly (AVI, 1974); thus it is an official determination of the quality control-training combination. In a sense, certification can be considered to be the final stage in the quality control of the training process. For example, licensing agencies and professional organizations which are associated with

[1]The following definitions will be employed throughout this chapter:

Certification is the process by which an outside agency supplies quality control procedures to the final stage in the preparation of an individual to practice a profession.

Accreditation is the process by which an outside agency applies quality control procedures to a curriculum or group of curricula in order to guarantee the quality of either the curricula or the graduates of the curricula.

Graduation is the final granting of certification by an inside agency, such as a university department, high school or college.

Each of the above may be competency-based or non-competency-based. The type of quality control procedures employed is largely determined by this procedure, and in turn largely determines the effectiveness of the procedure.

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the service of "helping" professions, such as medicine, guidance, and counseling, to name three areas, require students to engage in internships prior to becoming certified. Skills exist in all three professions which must be practiced while students are engaged in formal instruction so that those skills which need "honing" can be "honed" under the supervision of a professional practitioner.

This is not to suggest that an instructional program, regardless of its academic soundness, can guarantee that all of its graduates will perform as expected by the institution or the accrediting agency. Nevertheless, accredited programs which incorporate quality controls along with certification requirements can, to a reasonable degree, insure that graduates have been exposed to a sound curriculum with built-in quality controls and can perform at the minimal level of adequacy established by the accrediting agency.

The underlying rationale for certification is the assumption that if a person is certified to perform a task correctly and if the task produces known results, then by certifying that the individual can perform the task, the quality of results is somewhat insured. In an article, "Certification and Accreditation" (AVI, 1974), the author illustrated this idea by stating that:

> The medical doctor may not always be completely successful in the treatment of his patients, but according to the rationale behind licensing, he can carry out procedures beneficial to his patients. The procedures have been tested in the past and have shown results for patients with similar symptoms.

Special significance should not be attached to the medical example except that all of us are aware that the medical treatment does require successful application of theory if the patient is to progress. The underlying assumption is that licensed medical doctors, regardless of the specific source of their academic preparation, can perform basic medical treatment.

Unfortunately, this claim cannot be made about students graduating from the various programs in educational technology; skills possessed by students upon completion of these programs are likely to be as varied as the universities awarding degrees. The purposes of this chapter are to: (1) present a historical perspective on educational technology, (2) discuss problems associated with the professional preparation of media personnel, (3) discuss the current state of certification requirements and (4) suggested guided field experiences or internships. A summary is also provided.

SOME CURSORY REFLECTIONS ON THE HISTORY OF EDUCATIONAL TECHNOLOGY

Educational technology has undergone radical changes since the early days of audiovisual emphasis. In a way, these changes parallel those of the transportation industry. This industry has progressed from travel by land and water, to travel by air; the horse-and-buggy, to trains, to the horseless carriage to the Wright Brothers and their early flights, to jet engines and space flights. Although educational technology has not made progress of this magnitude, progress has been significant. In earlier days, media personnel were "deliverers" of materials and equipment, providing these services without having to meet certification requirements. Educational technologists have progressed from delivering art objects and models, to museums during the early 1900s, to designing instructional systems at the present time. The movement has been from a no-certification requirement towards basic certification requirements.

The audiovisual movement evolved and became a part of the mainstream of instruction circa 1918-1929. For the first time during these years:

(1) Visual instruction courses were offered to teachers for credit at the college and university level;
(2) Professional organizations for visual instruction were founded at national and local levels;
(3) Professional journals in visual instruction appeared;
(4) Systematic research in visual instruction areas was undertaken and reported; and
(5) Administrative units for visual instruction were organized in colleges and universities, public schools and state departments of education (Saettler, 1968).

Visual education or visual instruction were the phrases associated with the new area until 1947, when the Department of Visual Instruction of the National Education Association changed its name to the Department of Audiovisual Instruction. In 1970, a second name change occurred, and the Department of Audiovisual Instruction became the Association for Educational Communications and Technology.

Changes in the name of the organization, i.e., Visual Education, Visual Instruction, Department of Visual Instruction, Department of Audiovisual Instruction, and the Association for Educational Communications and Technology, either directly or indirectly resulted in changing descriptors for media personnel (audiovisual specialists, media specialists, educational technologists, ad infinitum). Courses in audiovisual education were being offered; graduate programs in audiovisual education were initiated at colleges and universities; research in audiovisual education was conducted at a rapid rate during the 1950s and 1960s.

The number of graduate programs in educational technology increased at colleges and universities during the 1970s. Mergers of programs in educational technology with programs in schools of library science occurred frequently. Some colleges

and universities still offered separate programs in library science and educational technology. This practice has added to the confusion in the terminology of the period. The presentation which follows is a discussion of some of the problems growing out of this history which are associated with the professional preparation of media personnel and which have implications for certification.

PROBLEMS ASSOCIATED WITH PROFESSIONAL PREPARATION

As mentioned in the preceding section, at many universities the schools of library science and the educational technology program have combined their efforts in the preparation of professional media specialists. At other universities these two programs remain separate, with each program awarding degrees in media. The latter academic practice contributes to a confusion over the different competencies and skills a media specialist can be expected to possess, since individuals who graduate from separate programs are trained in various sets of competencies. This, in turn, makes it more difficult for prospective employers to select a properly trained person for a particular job. School administrators, business and industrial executives, and professional school personnel often consider an individual who received his professional preparation in an educational technology or educational media program and one who received his professional preparation in a library science program as having the same competencies, but this in fact, is not the case. Because of the recent trend towards the housing of the media center in the school library, and the changes in nomenclature relative to media specialists, confusion continues to exist relative to who is a media specialist and what competencies he should possess.

Considerable attention has been devoted to defining the role of the media specialist from varying points of view. No attempt will be made here to add to the already lengthy list of role definitions. However, the writer operationally defines a media specialist as an individual who assists teachers in the selection, preparation, integration, utilization, and evaluation of media in order to extend the learning capabilities of a target audience. Thus, the responsibilities of the specialist extend beyond working with media, i.e., threading projectors, making minor equipment repairs or simply working in a setting where media are stored. Literature describing media personnel and their roles is abundant and provides a multiplicity of job titles. Media personnel suffer, among other things, from the problems associated with an ever increasing list of job titles. Apparently titles are changed in order to keep pace with changes in the roles played by media Personnel. Wynn, (1973) in describing these changes, writes that "this trend from banal to more esoteric job titles has been all about us, even in schools. School librarians have become instructional material center coordinates..." This changing of titles was explained by Wynn (1973) when he wrote that "the esotericism of job titles must be escalated with the rising affluence of society." Audiovisual specialists have evolved into educational technologists with an endless number of descriptors in between. No single group or individual is responsible for the maze in which the field finds itself. All involved in the field are equal partners in the "confusion matrix."

A review of the literature reveals that both the titles "media coordinator" and "media specialist" are frequently used to describe a person who coordinates the use of media. While arguments about this point may seem trite, careful analysis indicates that it compounds existing confusion. In a few states, individuals whose major academic preparation is in library science are certified as "media coordinators." Similarly, those whose major academic preparation is in educational technology or educational media are certified as "media specialists" (in either television, production or instructional development). Failure to recognize the differences in academic preparation of the "media specialist" and the "media coordinator," and differences in competencies and skills developed in their training programs is also a failure to dichotomize the two areas. Without a doubt, there is presently more overlap in the tasks performed by "media specialists" and "media coordinators" than in previous years. Yet, differences still exist. The librarian's changing role is chronicled in part by Wood (1970) who asserted that school librarians, in their roles as "media specialists," must possess competencies in media design, development, and evaluation. There is no question that librarians can function effectively and efficiently in the new role. The paramount concern is that librarians in their new roles be referred to as "media coordinator." Imagine the confusion which would result from calling peaches and nectarines by the same name.

JOINT CERTIFICATION FOR MEDIA PERSONNEL

As mentioned, library programs and media programs have been merged in many colleges and universities. This merger provides students in these programs with similar curricular experiences. Therefore, joint certification for these students does not pose a problem. However, there are library programs and media programs which remain separate and which continue to provide differing curricular experiences. Joint certification for individuals completing these separate programs will create numerous problems. It is unlikely that students from programs with differences in scope and content can take and pass the same certification examination.

In 1975, a questionnaire was administered nationally to 495 school media specialists in an effort to ascertain and assess their judgments and perceptions of the graduate level courses they felt

were most appropriate and applicable for training them to manage and operate their school media centers. Among the findings were that:

> Graduate level media programs should offer additional courses in media design and production. Courses that would seem to hold some interest for school media specialists might include (1) advanced media production skills, (2) graphic design and (3) still and motion picture photography (Ball, 1976).

Most library programs which remain separate from educational technology or educational media programs do not offer and probably cannot offer such courses without major curricular and staff additions. These courses are usually offered in educational technology or educational media programs.

Similarly, courses such as storytelling, basic reference materials, and cataloging are recommended by the survey for inclusion in graduate programs in educational technology or educational media. Educational technology or educational media programs which have not combined with library programs probably do not offer or probably could not offer the latter sequence of courses without major curricular or staff additions.

The circumstances noted above appear to suggest a merger of all library and educational technology or educational media programs. However, it is proposed that that merger should take place only when more similarities than differences exist between programs, when the two programs prepare students for similar jobs. A merger of programs should also mean a merger of staff.

The preceding presentation is intended to bring into focus some of the problems associated with preparing media personnel. Mergers of educational technology programs with programs in schools of library science does not present a problem with respect to certification of graduates from these programs. Certifying graduates of separate programs may present a problem. The ultimate concern should be to develop competencies in students which will enable them to obtain and maintain employment and to perform effectively on the job. In reference to certifying students who graduate from separate library and media programs, the following should be considered:

1. Advisors of students majoring in educational technology or educational media should recommend library science to their students as a minor.
2. Advisors of students majoring in library science should recommend educational technology or educational media to their students as a minor.
3. An examination should be designed for those students who graduate with a major in educational technology or educational media and a minor in library science. The major thrust of the examination should be in the area of media.
4. A different examination should be designed for those students majoring in library science with a minor in educational technology or educational media. The major thrust of this examination should be in the area of library science.
5. A separate examination should be designed for those students who graduate with a major in educational technology or educational media who pursue a minor other than library science, and for those who graduate with a major in library science, who pursue a minor other than educational technology or educational media. The thrust of these examinations should depend upon the student's major area of concentration.

Library and media programs which have not combined in their effort to train media personnel are exposing their students to different curricular experiences. These experiences present problems regarding certification. Even should the differences in competencies of "media specialists" and "media coordinators" be clarified, certification examinations still must be designed to reflect these differences. The above should not be taken to mean that the decision to merge library and media programs is unwise. Yet, merger of these programs has implications for certification. Universities which have separate library and media programs are providing students in each area with different curricular experiences and developing in these students different competencies. In any event, those who certify students who graduate from a combined library-media program and students who graduate from separate library and media programs must consider differences in preparation.

The impetus for certification came about as a result of an increased number of advanced programs in audiovisual education. It was proposed at a California audiovisual workshop in 1947 that an audiovisual director must complete either a supervision or administration degree on the elementary or secondary level. Additionally, it was recommended at this workshop that the audiovisual director must complete one course in the administration of audiovisual programs and one course in supervision of instruction and curriculum in audiovisual education (Saettler, 1968).

A more detailed credentials program was recommended in 1951 by a committee of audiovisual directors in Indiana. These recommendations were approved by the Indiana Teacher Training and Licensing Commission. They were subsequently presented to the Committee on Professional Education and a sub-committee of the Department of Audiovisual Instruction (DAVI). In 1952, it was recommended by this sub-committee and approved that DAVI take the following actions:

1. Go on record urging appropriate state

groups to take steps in their individual states to bring about suitable action to establish certification for audiovisual directors.

2. Assist appropriate state groups by supplying them with a suggested pattern of requirements for certification of audiovisual directors.
3. Recommend that experience as an audiovisual director prior to the effective date of certification be counted toward professional course requirements in audiovisual education.
4. Recommend that such state certification requirements become effective within three to five years.

Thus, it was evident in 1952 that planners of curricular experiences for students enrolled in audiovisual education programs were concerned with verifying that appropriate competencies were possessed by media personnel. It was perhaps during this time that the role of the media specialist was changing rapidly. Concern for the preparation of audiovisual or media specialists was shared by the Department of Audiovisual Instruction, as demonstrated by the department's sponsorship of the Professional Education of Media Specialists (or PEMS) Commission, whose task was to study new professional preparation of media personnel. This period also brought with it studies sponsored by the United States Office of Education, numerous textbooks in the field, and a multiplicity of DAVI publications.

CERTIFICATION: WHERE ARE WE?

The 70s was a recapitulation of the 60s with respect to certification and accreditation efforts. In 1971 for example, Robert Heinich, then president of AECT, appointed two task forces. One task force was assigned the responsibility for studying problems pertaining to certification. The other task force was asked to make recommendations regarding problems associated with the accrediting of educational communication and technology programs. The two task forces worked on their respective assignments for approximately three years, sometimes working independently and sometimes in concert. As a result, guidelines were recommended. These guidelines represented a competency-based approach, rather than requiring students to complete a certain number of courses carrying particular titles. In other words, these guidelines attempted to relate accreditation and certification to specific competencies rather than to courses. The initial areas proposed for certification were, media management, media product development, and instructional program development.

Recommendations adopted in 1974 provided guidelines for two levels of complexity or competency; for each of the areas to be certified/technician and specialist. Areas and levels are visualized as a 2 x 3 matrix (AVI, 1974). The area under consideration for certification were media management, media product development, and instructional product development. As will be discussed in detail later, these guidelines continued to evolve, until by 1979 the major area under consideration for certification had become instructional development, media management, and materials design and production. A graphic representation of the 1979 guidelines is presented in Figure 42-1.

Each major area in which certification is contemplated consists of nine sets of competencies:

1. Organization management
2. Personnel management
3. Research and theory
4. Design
5. Production
6. Evaluation and Selection
7. Support and supply
8. Utilization
9. Utilization/dissemination.

The 1974 guidelines indicated that since these competencies could be performed at various levels of difficulty, an individual could be certified at two different levels to be called specialist or

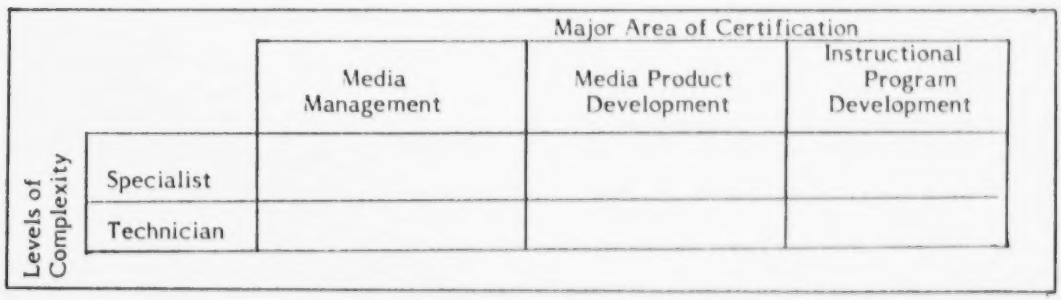

Figure 42-1. Guidelines for 1979.

technician; this bilevel approach has been retained in the 1979 guidelines which now will be examined. The media management area of certification required the technician to have an associate degree, with either three semester hours of supervised practicum, internship or field experience, or with six months of work experience. The specialist in media management must have earned a four year degree, be certified as a teacher, and to have two years of experience in the field.

The media product development technician was required to hold an associate degree with the same experience parameters as those required of the media management specialist. The media product development specialist was required to have two years of experience in media product management, a master's degree and teacher certification. The last level, instructional program development, did not have certification requirements for the technician level but required a doctorate for the specialist, along with three years of teaching experience and two years of experience in instructional program development. Competencies for each area and level are detailed in the November 1974 issue of Audiovisual Instruction.

As previously noted, a certifying agency attempts to determine if an individual can adequately perform specified tasks. Since individuals can be certified in the above three areas, updating the curricula should mean modifying curriculae in such a way as to increase the likelihood that students graduating from these programs can successfully perform those tasks required by the certification guidelines. The accreditation process should in turn, be based upon the establishment of such curricula. (It should be noted at this point the difference between accreditation and certification.) Prigge (1976) points out that accreditation is concerned with the evaluation and approval of programs whereas certification is concerned with the licensing of individuals.

While revisions have been made in these guidelines, major changes have not occurred even though not all of those interested in the matter are satisfied by these guidelines. Evidence of this is provided by the fact that, as late as 1979, annual convention certification was the most frequently discussed topic at the AECT Conference held in New Orleans. Nevertheless, as it now stands, instructional development, media management and materials design and production are to be the areas in which it will be possible to obtain certification.

PRESENT GUIDELINES

As the guidelines have fully emerged, individuals seeking certification must demonstrate competency in the common core area, which consists of competencies in each of the following sub-areas:

1. Professional Development
2. Equipment Operations
3. Instrument Construction
4. Evaluation Methods
5. Needs Assessment
6. Performance Analysis
7. Behavioral Objective Construction
8. Code of Ethics Adherence
9. Public Relations
10. Communication Models
11. Terminology
12. Human Relations
13. Interpret Research
14. Application of Research Findings

In addition, the individual must demonstrate competency in one of the three specialty areas, i.e., instructional development, media management, or materials design and production.[2] In order to obtain certification as an instructional developer and as a manager of instructional development, the individual must demonstrate competencies in each of these areas:

1. Organization - Management
2. Personnel Management
3. Research - Theory
4. Production
5. Design
6. Evaluation/Selection
7. Logistics
8. Utilization/Dissemination.

Areas of competency required for certification in media management include, in addition to the core area, each of the areas listed below:

1. Organization - Management
2. Personnel Management
3. Utilization
4. Research - Theory
5. Evaluation

Certification in the area of Materials design and production will occur on two levels; basic certification, which is the level at which materials are designed and produced, and advanced certification, which includes the management of complex operations and the coordination of groups of individuals and units. Certification in materials design and production will mean that those certified are competent in the core areas listed earlier, and in addition can demonstrate all-around production capabilities in conveying messages via:

1. Graphics and Graphic Arts (include printing and reproduction)
2. Photography
3. Audio Communication and Audio Recording Distribution
4. Cinematography
5. Television
6. Combinations and Derivations of the above.

Present plans call for the competencies in each of the areas to be evaluated using:

1. A Written Examination
2. A Portfolio Examination

[2] Information excerpted from "Certification," Florida Media Quarterly by Ronald K. Bass and Marvin E. Duncan, Vol. 5, No. 1, Fall 1979.

3. A Practical Examination

Of course, plans are subject to change. However, major changes are not expected to occur in the proposed guidelines as they have outlined here.

Guided Field Experiences

One way of insuring a positive correlation between task performance and certification is to incorporate guided field experiences or internship into the student's learning experiences. This is particularly necessary in areas where the mastery of theory and the application of that theory in practice situations are equally important. There is a dearth of literature which related directly to guided field experiences for students in advanced educational technology programs. There are studies however, which point out the value of internships in other areas. Davies (1962), in writing about internships in Educational Administration, remarked that an internship in administration, like in any other area, is designed to achieve specific objectives. Davies compiled a composite list of objectives after surveying the literature. He found that these objectives fell into three categories: those applicable to the interns, those applicable to the sponsoring field agency, and those applicable to the cooperating agency. The emphasis here is on those objectives which pertain to the intern. The objectives and caveats listed by Davies follow:

1. To enable the intern to develop a more comprehensive view of educational administration.
   The difference between what is taught in the professional schools and what actually occurs in the day-to-day practicing situation sometimes is substantial. The reasons are many: The lag between theory and practice; gaps in the professional curriculum; nuances of operations dealing with real people that are difficult to tell about in the lecture hall; and effects of community pressures for specific changes. These and other extensions of the on-campus part of one's professional preparation come, it is said, by way of the internship.
2. To provide the intern with the experience of carrying real adminstrative responsibility.
   The purpose here is to offer direct experience as a teacher rather than relying on the various experiences of the campus classroom. Much of administration involves action skills. To learn skills, study them, try them, and eliminate incorrect ones, the intern learns how to perfect skills under the application of responsibility.
3. To enable the intern to benefit from lessons learned by the sponsoring administrator during long professional experiences.
4. To provide a testing ground for the beginning educator whereby the adequacy of training, probable success as an administrator and the type of position for which one is best suited can be determined.
   Just as automobile manufacturers need "proving grounds" and "road tests" to check the dependability and performance of their laboratory-designed and factory-built products, so do professional schools need a safety check on their selection and developmental processes. Here is the guidance function of internship. Like the automobile road tests, it assumes the basic soundness of the product. It is pointed primarily at correcting details of design and manufacture -- and estimating the probable market (Davies, 1962).

While these objectives were written for students in educational administration, they appear to be applicable to the broad area of educational technology. For example, students attempting to be certified as instructional developers could learn an invaluable lesson while working with an experienced developer during an internship. Students could learn to:

1. Create an atmosphere of mutual trust with the client. The intern should come to realize that this atmosphere is necessary if he/she is to work successfully with a client. He/she should also learn that confrontations and highly critical behavior should be avoided.
2. Ask probing questions of the client. These questions should lead the client to understand more clearly what has to be done. Answers to these questions should also provide insight with respect to the nature and source of the educational problem.
3. Develop good listening habits and skills. In this regard, the intern will learn to allow the client to do most of the talking, especially in the early stages of curriculum revision. The intern will learn that the client will reveal the real educational problem sooner or later, directly or indirectly.
4. Avoid the use of educational jargon peculiar to the field of instructional development, since teachers may not have this jargon in their functional vocabularies.
5. Value interpersonal communication skills and to realize that face-to-face communication is superior to other forms of communication (Duncan, 1978).
6. Develop a more comprehensive understanding of the nature, scope, and intracacies of the instructional development process. However, by

becoming directly involved, the student should learn to state instructional problems in a clear and concise manner, become aware of the complexities in identifying instructional problems, analyze instructional objectives in terms of types of learning, match media with objectives, provide alternative solutions to the problem, evaluate the instructional development effort, i.e., strengths and weaknesses of the product based on field testing. This integration of theory and practice during the guided field experience affords the intern a testing ground where theory is utilized in a real-life situation (Bass and Duncan, 1982).

The objectives presented above concern certification for instructional developers. However, the other two areas of certification, i.e., media management and materials design and production also afford students invaluable internship experiences. Students pursuing specialization in materials design and production can learn theory and gain valuable experience during their formal academic preparation. The test of how well this theory and application have been mastered could come during an internship, during which the student would be assigned to work under the supervision of an experienced practitioner.

FEEDBACK, CERTIFICATION AND TRAINING IN MEDIA

The field of educational technology has become saturated with graphic models. These models are designed as guides which illustrate how the instructional development process works and many of these models make use of feedback loops which serve as "monitors" for each stage of the process. The feedback monitoring process has been proposed as an element of certification. Academic programs training instructional technologists would receive information concerning what areas and competencies their graduates were failing in. This would enable them to structure their programs so to correct these deficiencies. Feedback can also be profitably utilized during a a trainee's internship; the school sponsoring the intern would receive information relating competencies the intern was deficient in. Thus the school could correct these deficiencies in their program, if a general pattern were to be detected. If the deficiency were to be found to be peculiar to a particular intern, further work with the intern could be undertaken to correct his deficiencies. As had been advocated by curriculum specialists for years, this process could also be built into the curriculum leading to the internship. As a student progresses through the curriculum, deficiences in competencies the student should have mastered in preceding courses could be identified, and this information could be fed back to those responsible for the appropriate prior courses. Added to the usual summative evaluations conducted at the end of such courses, this would prove to be a powerful tool for curriculum improvement, as well as a strong step toward guaranteeing both curriculum consistency and certification examinations. Such a procedure has long been utilized by industry to ensure a quality end product; here it is known as "quality control."

Monitoring student progress should begin at the entry level and should continue through the guided field experience phase. Without quality control and associated monitoring techniques, both teacher and student could be "missing the boat"; theory and techniques not relevant to the real world could possibly be taught while learning content needed for efficient productivity could be neglected.

Quality control is one way of monitoring results at various stages of the process. "Certification and Accreditation: Introduction to the theme of the month" (1974) included a discussion of quality control and described quality control as a process illustrated thus:

It may be observed from Figure 42-2 that quality control, a monitoring process can be employed at each of the stages of the production sequence. It can be used to monitor the quality of result, to monitor the quality of the process or task which produces the result, or to monitor the quality of the person performing the process which produces the result.

Figure 42-3 illustrates quality control after the performance of the task.

In Figure 42-4, quality control is entered as a measure of the task and not the results. In other words, one is judged on the basis of how well tasks are performed and not by results. An appropriate analogy would be judging a basketball player by form and technique (tasks) and not by results (whether the ball goes through the basket).

Figure 42-2. The production process.

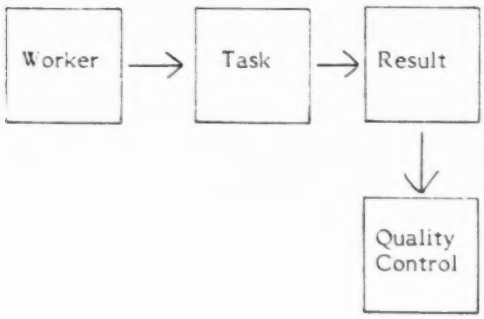

Figure 42-3. Quality control and performance of task.

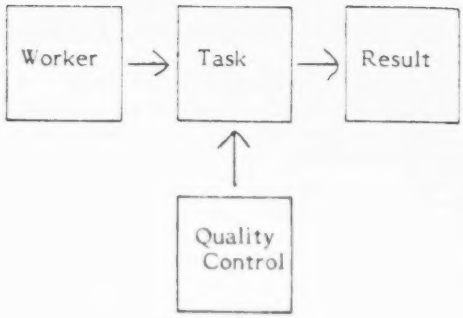

Figure 42-4. Quality control as a measure of the task and not the results.

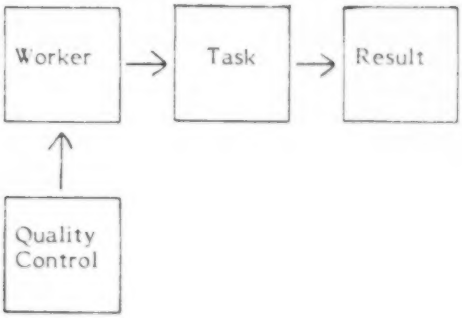

Figure 42-5. Quality control moved further from results.

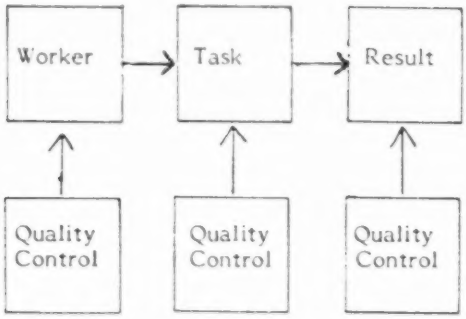

Figure 42-6. Quality control at each step.

Figure 42-4 is a graphic illustration of quality control in relationship to the task rather than to the results.

As shown in Figure 42-5, when all tasks performed cannot be evaluated and observed, quality control is moved further from the results.

> ...the reason for doing so can be quite legitimate. In practice, however, problems arise. For example, some licenses and certificates are for life or are automatically renewable. Further, most licenses are granted on prepractice performance (Audiovisual Instruction, 1974).

Ideally, quality control should be used at each step of the process. Should this be the case, monitoring would take place at each step. This is illustrated in Figure 42-6.

Quality control, it should be noted, can serve two separate but related functions; as a filter and as a feedback device. Both functions are relative to the discussion of certification and accreditation, but so far the discussion has centered upon its use as a feedback device. As a filter, quality control acts as a membrane, or "screen," which has a differential permeability to products, processes or procedures of differing degrees of acceptability, as judged by pre-defined criteria.

The certification procedure has a positive intent: to provide the world with a supply of educational technologists of a known quality. But it also acts as a quality control system, in that it will reject those who are of a lesser quality as measured by pre-determined standards. The rejection is necessary, not only to eliminate questionable products, but also to provide the feedback function to previous stages in the production

process. If no one is rejected at the certification stage, no information is obtained for the preceding stage. This dual nature of the process, which is a direct result of the semi-permeable membrane, is a necessary characteristic of the quality control process. However, while the dual function is always present in quality control by its very nature, the use to which the two aspects of quality control are put is not so determined. We have several alternatives facing us, and it is necessary that we be aware of them and make our choice among them deliberately, rather than by happenstance, if the processes of accreditation, certification and the training of educational technologist are to be bound together in a national system of optimal efficiency.

These alternatives depend upon the use to which the two functions of quality control, described above, are put. First, the data gathered in the quality control process may or may not be fed back to those at previous stages. Second, those identified by the quality control process as not meeting the requirements for passsing through the membrane may or may not be rejected. For example, they may be merely identified, and then passed, as often happens in the garment industry, where clothes which do not meet the requirements to be given a certain label are not rejected, but are merely given another label which does not carry with it the same connotations of quality. Or they may be passed unless the failure to meet standards are gross, as viewed by the inspector; such latitude is often exercised, for example, by inspectors in the building construction industry.

Further, since quality control can be exercised at each of the three stages of the production or training process, it becomes possible to employ differing combinations of the two functions at differing points. Thus, in the final stage, certification, one may want to pass everyone and give detailed feedback to the sponsoring school; during the process of training, one may wish to recycle students who are inadequately prepared, and to give feedback information to the program admissions committee. The program admissions committee may wish to reject most applicants, and provide both rejected and accepted applicants with no feedback information at all, (other than notification of results). Accreditation teams may wish to reject no programs at all, but merely to label them according to whether they meet criteria or not, to give each school complete feedback, and to either demand recycling and reexamination; or they may wish to provide this feedback data to all prospective students and employers.

Whatever choices are made, they should be made with full awareness of alternatives; the choices should be made in terms of what purposes the alternatives will accomplish; and they should be made with the goal in mind of welding the accreditation process, the certification process, the training process, and the selection process (both of students for training programs and of graduates for employment) into a system which is efficient, sufficient, flexible, responsive to new data, and humane. The tool for accomplishing this is quality control, and especially the generous use of the feedback aspect of quality control. And it seems unlikely that any other tool exists which can do this. Thus, effective accreditation-training-certification procedures may well be impossible without appropriate decisions concerning their use.

For the first time, the guidelines have provided training institutions a way of updating curricula and a basis upon which to make assessments as to whether or not they were teaching skills specified in the guidelines. In other words, a very definite attempt has been made to establish a positive correlation between performance of a task and certification; how wisely this attempted correlation will be actualized remains to be seen.

SUMMARY

Educational technology has progressed from the infant stage of growth to late adolescence; adulthood remains over the horizon. Media personnel/educational technologists have evolved from being deliverers of materials and equipment with no certification status to designers of instructional systems with certification status. The audiovisual movement became a part of the American mainstream of instruction between 1918-1929 when colleges and universities, public schools and state departments of education began to organize administrative units of visual instruction. The professional organization underwent many name changes; likewise titles associated with media personnel changed from audiovisual specialists to media specialists to educational technologists, ad infinitum. Also significant was the appearance of graduate programs in educational technology at colleges and universities at an increasing rate. Confusion has arisen concerning the competencies which a person with a given title, or from a given school, can be expected to possess.

Numerous programs in educational technology and library science have been combined; others have remained separate, with each program awarding degrees in media. It is the latter practice, the writer feels, which has contributed to the above confusion about which competencies and skills can be expected in individuals who graduate from these programs. In order to deal with this situation, the writer feels that certification regulations should provide certifications for graduates from joint library-media programs, from separate library programs and from separate media programs.

The increased attention being given to certification has resulted from the increased number of advanced programs in audiovisual education. It was evident during the early 1950's that planners of curricular experiences such as the PEMS Commission were concerned with competencies possessed by students of these programs. Two task forces were appointed in 1971 by Robert Heinch, then president of AECT. One task force was

assigned the responsibility for studying problems pertaining to certification: the other task force was asked to make recommendations regarding problems associated with the accrediting of educational communication and technology programs. As a result of these efforts, guidelines in these areas were developed. Guidelines adopted in 1974 included two levels for each certification area, i.e., technician and specialist.

The areas under consideration for certification in 1974 were media management, media product development, and instructional product development. The major areas under consideration for certification in 1979 were instructional development, media management and materials design and production. Although the earlier guidelines were revised in 1979, as shown by the areas under consideration, major changes have not taken place.

Certification means that the individual certified can perform specific tasks. In the past, there has not been, necessarily, a correlation between performance of task and certification. The new guidelines attempt to establish a positive correlation between task performance and certification. As mentioned, one way of establishing a positive correlation between performance of task and certification is to incorporate guided field experiences into the student's formal instruction. The value of these experiences cannot be overemphasized. Similarly, the value of establishing quality controls throughout the student's learning experience is of extreme importance. Heuristically, quality control is a procedure for monitoring all stages of a process or a curriculum experience in order to insure that skills in each stage of the learning process have been sufficiently mastered prior to movement to the next stage and thereby providing assurance that expected outcomes (and products) are predictable. This process also provides product quality information which can be fed back to previous points in the system in order to ensure proper regulation of the production process. One phase of this system for self-regulation is curricular revision, and other is accreditation. How this regulation should occur, and how quality control is to be assured in the graduate, are important matters about which we must make intelligent, informed decisions. The need for these decisions comes from the growth of our profession, which is in many ways yet an infant. An infant does not grow without growth pains. There are growth pains all the way from infancy until adulthood. Organizations and academic areas experience similar growth pains, and educational technology is no exception. So where are we, educational technologists, in regards to the certification? We are experiencing growing pains, but at least we are growing, and apparently in the right direction!!

REFERENCES

"Audiovisual Instruction," Vol. XIX, No. 9, November 1974, entire issue.

Ball, H.G. School specialists' perceptions of media education programs. The Southeastern Librarian, XXVI, 4:226-229, Winter 1976.

Bass, R.K. and Duncan, M.E. Certification. Florida Media Quarterly, 5:1, Fall 1979

Bass, R.K. and Duncan, M.E. Guided field experience - A must for instructional developer preparation. Journal of Instructional Development, 5:23-25, Winter 1981-82.

Billotta, A.L. What's a media specialist? AV Communications, 58-61, January 1978.

Boston Conference Proceedings, NEA, Department of Instruction. Washington, DC, 15-16, 1952.

Burford, T.E. The certification of educational media personnel in the State of Michigan. Media Spectrum: Journal for Michigan Association for Media in Education, III, No. 1, 19-22, 1976.

Certification and accreditation: Introduction to the theme of the month. Audiovisual Instruction, XIX, 9, 7, November 1974.

Davies, D.R. The Intern in Educational Administration. Washington, DC: The Center for Applied Research in Education, Inc., 1962.

Danna, S. R. Revising media curricula to meet job market needs. Educational and Industrial Television, 35, January 1980.

Duncan, M. E. The intricacies of instructional development. Chapter II in Instructional Development: The State of the Art, R. K. Bass and B. Lumsden editors. Columbus, Ohio: Collegiate Publishers, Inc., 1978.

Media Program Recommendations, Division of Educational Media, State Department of Public Instruction, Raleigh, NC, 1975.

Prigge, W. C. Certification/Accreditation: A Report - Review - Reaction, Audiovisual Instruction, XXX, 6, 25, June/July 1976.

Saettler, P. A History of Instructional Technology. New York, NY: McGraw-Hill, 1968.

Standards and Guidelines for Approval of Institutions and Programs for Teacher Education, Division of Teacher Education, North Carolina Department of Public Instruction, 1973.

Wood, J. S. The role of media specialists in the curriculum process. School Library Journal, XXIII, 1, 20, September 1976.

Wynn, R. The Wynn principle. Phi Delta Kappan, LIV, No. 6, February 1973, backcover.